2016 Wild Turkey Observation Survey Summary

The Maryland Department of Natural Resources (DNR) has annually conducted a summer wild turkey observation survey since 1993. The primary purpose of this survey is to estimate reproductive success so it is often simply called the "brood survey." Like most game birds, turkeys are very dependent on reproduction to add new individuals to the population. Turkey numbers, harvest rates, hunter success, and the population age structure are all influenced greatly by annual poult production, making this survey an important monitoring tool.
Thanks to all the volunteers and DNR staff that assisted with this survey!

RESULTS

A total of 3,888 turkeys were recorded by the 91 individuals or groups that returned survey forms in 2016, significantly lower than the 4,634 turkeys observed by 81 participants in 2015. The number of adult hens and gobblers counted was higher, but the number of poults observed declined 35%. Statewide, an average of 2.0 poults was observed per hen. This is the lowest production index ever recorded in the 23 years of the survey. It is also well below both the 2015 index of 3.1 and the 14-year average of 3.0 poults per hen. All regions except the central region had below average production indices.

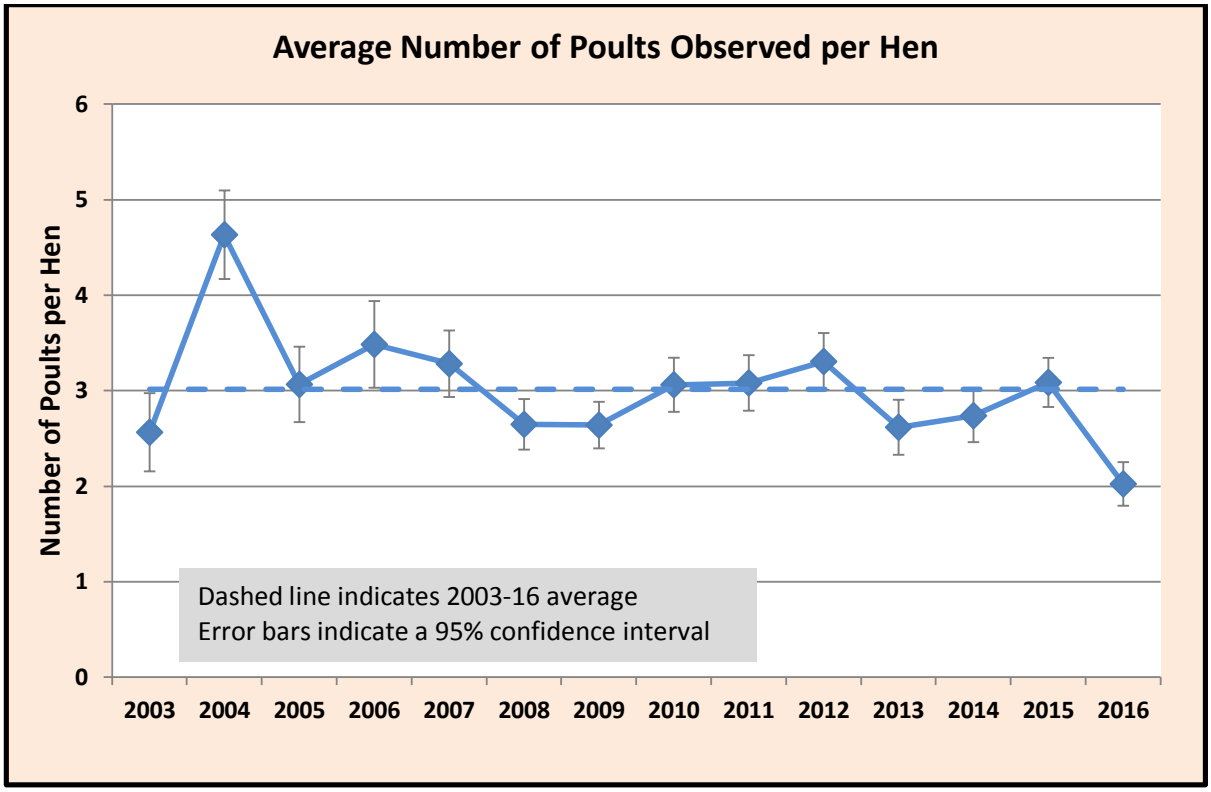
Statewide, only 52% of hens were observed with young. In a typical year, approximately 70% of hens are seen with young. This suggests that nesting success was exceptionally low this year. Precipitation was very frequent in most of the state during May, when most hens are incubating nests. Research has shown that persistent wet weather increases predation rates on nests because of increased ability of predators to scent nesting hens. This is sometimes referred to as the "wet-hen theory." Some hens that lose their first nest attempt to renest, but they typically lay fewer eggs and are less successful. The average number of poults observed per brood was very low at 3.8, indicating more renesting and/or lower poult survival than in a typical year. Additionally, the relatively high number of young produced in the summer of 2015 may have had an impact on this year's poult production. Young hens do not always nest in their first year and, if they do, they nest later and have lower success than adult hens. More detailed information and regional results can be found below.

SURVEY METHODOLOGY

Survey forms are distributed to interested DNR personnel, hunters, bird-watchers, landowners, and citizens. The survey is conducted during the months of July and August when broods are most easily observed and age can be readily determined. Participants are asked to record the county and number of hens, poults, gobblers, and "unknown" turkeys observed.

Note that data presented in this report may differ slightly from previous reports. This year, data were filtered and summarized differently than in the past. This was done to better represent trends in the data, minimize the effects of potential biases, and standardize results reporting among other states that conduct similar turkey surveys. The most notable change dealt with how observations that contain a large number of "unknown" turkeys are handled. All data since 2003 were re-analyzed with the updated methods and presented here to ensure comparability.

An annual production index is calculated as the average number of poults observed per adult hen. Other important data such as the average number of poults per brood and the percentage of hens observed with young are also calculated. This information, along with other sources of data, allows managers to explain and predict annual and regional variations in turkey populations and hunter harvest.


Average Number of Poults Observed per Hen
Number of Poults per Hen
0
1
2
3
4
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6
2003
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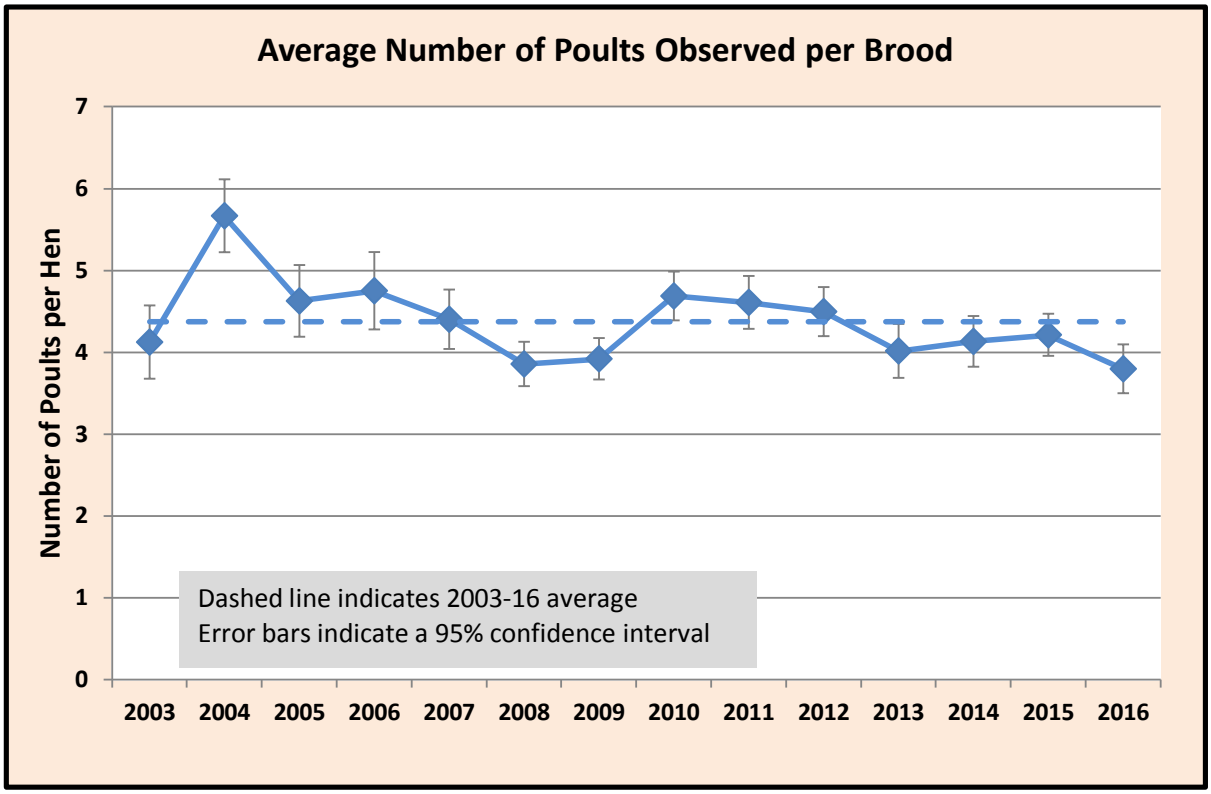
2015
2016
Dashed line indicates 2003-16 average
Error bars indicate a 95% confidence interval


Average Number of Poults Observed per Brood
Number of Poults per Hen
0
1
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2003
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Dashed line indicates 2003-16 average
Error bars indicate a 95% confidence interval

Table 1. Statewide Wild Turkey Observation Survey data, 2003-2016

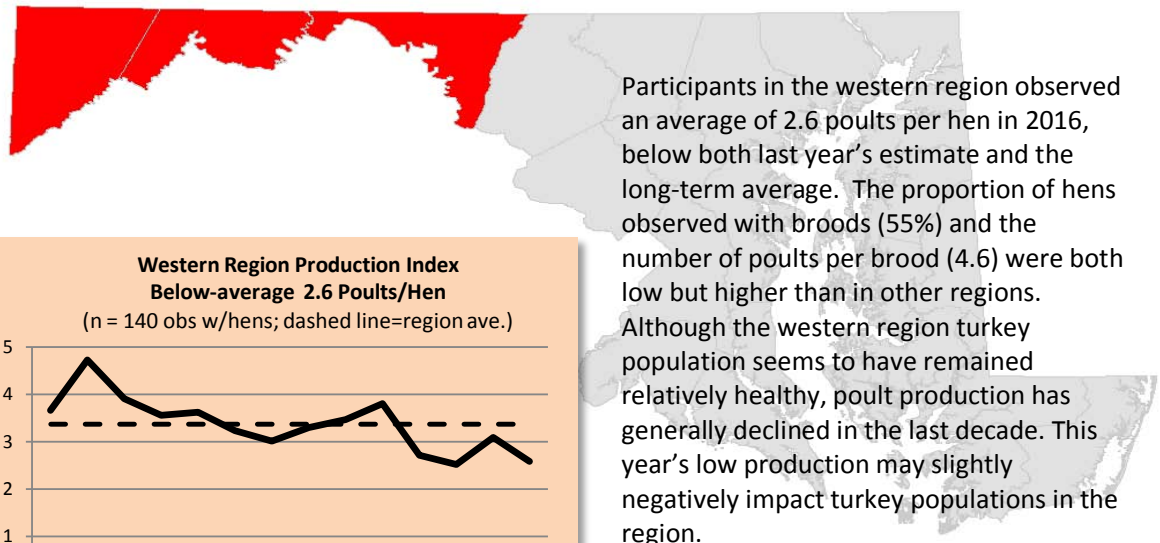
Year	No. of Observations	No. of Turkeys Observed					Percent of Hens observed w/ Brood	Average No. Poults per Hen	Average No. Poults per Brood
		Hens	Poults	Gobblers	Unknown	Total			
2003	215	338	732	181	2	1253	58.9	2.6	4.1
2004	269	449	1945	187	12	2593	84.6	4.6	5.7
2005	332	494	1323	283	4	2104	65.4	3.1	4.6
2006	246	423	1319	180	15	1937	74.9	3.5	4.7
2007	348	619	1761	271	9	2660	74.2	3.3	4.4
2008	427	841	1952	363	21	3177	72.3	2.6	3.9
2009	542	871	2054	504	39	3468	67.7	2.6	3.9
2010	537	998	2738	347	10	4093	69.1	3.1	4.7
2011	567	1021	2665	441	16	4143	67.4	3.1	4.6
2012	464	902	2833	434	31	4200	77.3	3.3	4.5
2013	448	835	2059	405	17	3316	71.1	2.6	4.0
2014	520	954	2276	478	17	3725	69.0	2.7	4.1
2015	540	1054	3007	557	16	4634	78.2	3.1	4.2
2016	**644**	**1176**	**1979**	**708**	**25**	**3888**	**51.6**	**2.0**	**3.8**
Average	436	784	2046	381	17	3228	70.1	3.0	4.4

Table 2. Regional Wild Turkey Observation Survey data, 2016

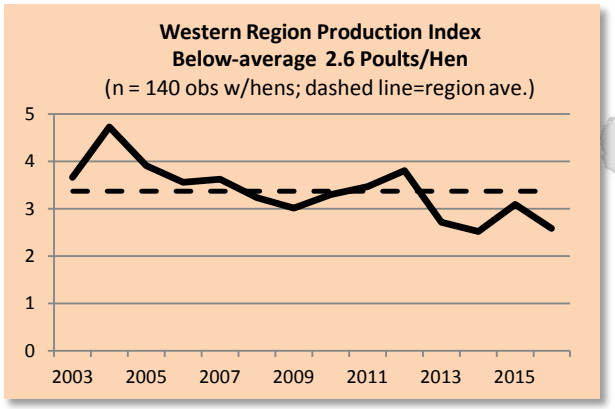
	No. of Observations	No. of Turkeys Observed					Percent of Hens Observed w/ Brood	Average No. Poults per Hen	Average No. Poults per Brood
		Hens	Poults	Gobblers	Unknown	Total			
Western	175	303	664	140	13	1120	54.8	2.6	4.6
Central	53	76	282	38	0	396	86.8	3.8	4.5
Southern	58	132	223	62	4	421	55.3	1.8	3.3
Upper ES	190	361	516	245	3	1125	51.5	1.8	3.3
Lower ES	168	304	294	223	5	826	38.2	1.2	3.2

[1] Regions defined as:
Western – Garrett, Allegany, Washington;
Central – Frederick, Carroll, Baltimore, Harford, Howard, Montgomery, Anne Arundel
Southern – Prince George's, Calvert, Charles, St. Mary's
Upper Eastern Shore – Cecil, Kent, Queen Anne's, Talbot, Caroline
Lower Eastern Shore – Dorchester, Wicomico, Worcester, Somerset

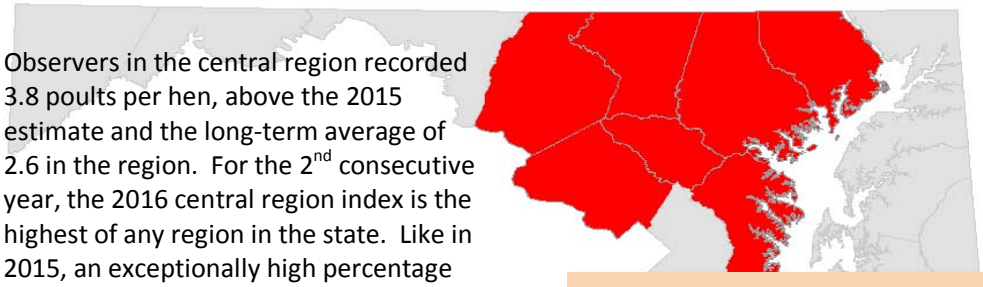
Western Region:
Garrett, Allegany, and Washington



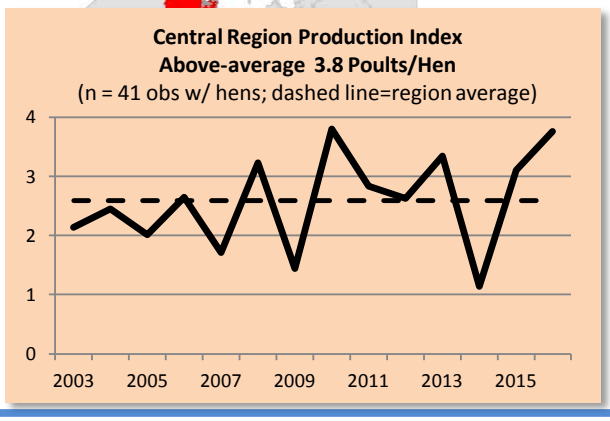
Participants in the western region observed an average of 2.6 poults per hen in 2016, below both last year's estimate and the long-term average. The proportion of hens observed with broods (55%) and the number of poults per brood (4.6) were both low but higher than in other regions. Although the western region turkey population seems to have remained relatively healthy, poult production has generally declined in the last decade. This year's low production may slightly negatively impact turkey populations in the region.



Central Region:
Frederick, Carroll, Baltimore, Harford, Howard, Montgomery, Anne Arundel

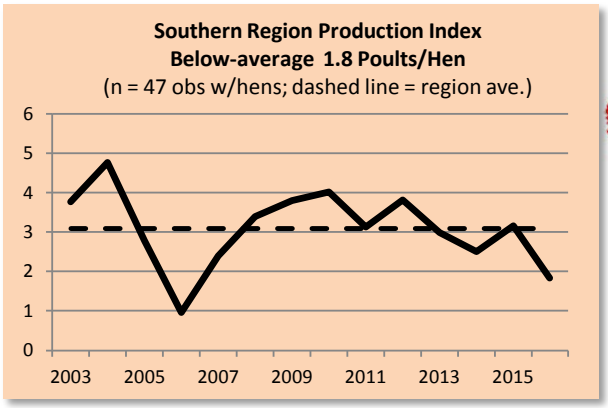


Observers in the central region recorded 3.8 poults per hen, above the 2015 estimate and the long-term average of 2.6 in the region. For the 2nd consecutive year, the 2016 central region index is the highest of any region in the state. Like in 2015, an exceptionally high percentage of hens successfully hatched young (87% hens observed with young). This region is quite different from the rest of the state; Populations have been low-moderate in most areas of the central region, but their numbers and range have been growing rapidly recently. These results suggest that the population should continue to grow in coming years.

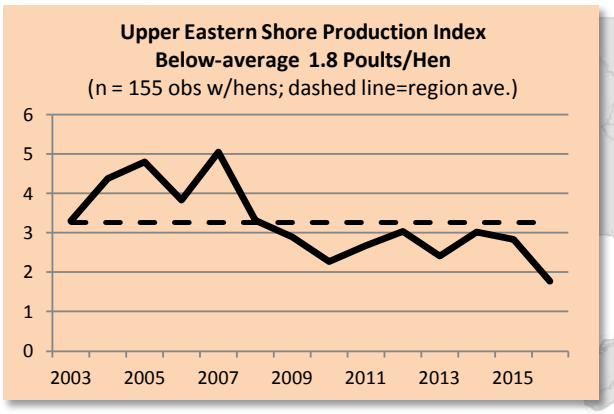


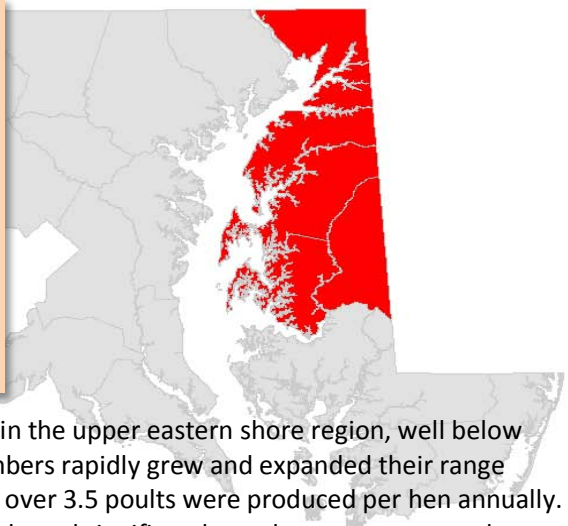
Southern Region:
Prince George's, Calvert, Charles, St. Mary's

The poult production index of 1.8 in the Southern region was well below the 2015 index and the long-term average. Only 55% of hens were observed with broods and number of poults per brood was low at 3.3. This region experienced rapid population growth due to high production during the time period of 2008-2012 but appears to be stabilizing. A similar trend has been seen in other regions and may be due to density-dependent factors. This year's low production may result in a noticeable drop in previously high turkey numbers.



Upper Eastern Shore:
Cecil, Kent, Queen Anne's, Talbot, Caroline

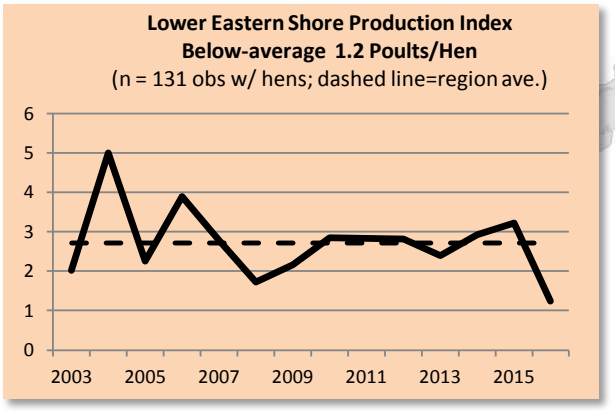


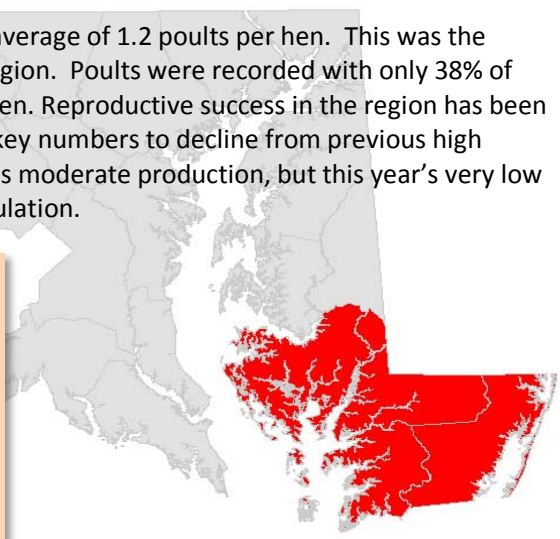


Surveyors observed an average of 1.8 poults per hen in the upper eastern shore region, well below both the 2015 index and region average. Turkey numbers rapidly grew and expanded their range following the high poult production of 2004-07 when over 3.5 poults were produced per hen annually. But various data suggest that population growth has slowed significantly on the upper eastern shore. Although turkeys are still abundant, it seems likely that the population has reached its carrying capacity and lower levels of production may become the norm. This year's production was exceptionally low and may result in fewer sightings in the next few years.

Lower Eastern Shore:
Dorchester, Wicomico, Worcester, Somerset

Observers in the lower eastern shore observed an average of 1.2 poults per hen. This was the lowest production estimate ever recorded in any region. Poults were recorded with only 38% of hens and only 3.2 poults were counted per brood hen. Reproductive success in the region has been below average in 9 of the last 14 years, causing turkey numbers to decline from previous high levels. A slight rebound was evident after last year's moderate production, but this year's very low reproductive output could further depress the population.





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